



STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

ACT/029/001
Norman H. Bangerter, Governor
Dee C. Hansen, Executive Director
Dianne R. Nielson, Ph.D., Division Director

355 W. North Temple • 3 Triad Center • Suite 350 • Salt Lake City, UT 84180-1203 • 801-538-5340

January 15, 1987

Mr. L. B. Giles
Plant Manager
Ideal Basic
Auxiliary Route No. 3
Morgan, Utah 84050

FILE COPY

Dear Mr. Giles:

Re: Mining and Reclamation Plan, Devil's Slide Cement Plant,
ACT/029/001, Morgan County, Utah

Attached are review memos documenting hydrology and engineering concerns on the Mining and Reclamation Plan for the Devil's Slide Operation, submitted October 16, 1986. Please incorporate a response to these deficiencies with the response you are preparing for the deficiencies outlined in the Division's November 19, 1986 letter.

To facilitate finalization of this permitting action, it would be helpful if you could submit a complete response by March 2, 1987. Please feel free to contact me if you have questions.

Sincerely,

Susan C. Linner
Reclamation Biologist/
Permit Supervisor

jvb
Attachment(s)
cc: L. Braxton
B Team
0028R-68

Jue

December 1, 1986

TO: FILE *PRH*

FROM: R. Harden, Reclamation Engineer

RE: Permit Review, Devil's Slide Cement Plant, Ideal Basic,
ACT/029/001, Morgan County, Utah

Comments regarding the reivev ot the Devil's Slide Project are as follows:

Rule M-5 - Surety Guarantee - JRH

Attachment 6 - Reclamation plan, should be used by the Operator as Exhibit "A" for bonding purposes. In order for this map to be included as a description of the area to be affeted by mining within the permit, the Operator shall include the affected and disturbed area aceages on the drawing.

The reclamation plan and cost estimate should clearly indicate the location and the extent of different reclamation construction and revegetation activities on the Reclamation plan drawing, within the text of the reclamation plan, and within the cost estimate for reclamation. The Operator should further provide calculations and reference drawings used to determine the quantities, equipment selection, productivity and cost for the reclamation cost estimate. The current cost estimate does not include suitable references to determine the quantities provided in the cost estimate. These calculations must be provided in order to dertermine the reclaamtion cost estimate complete. The Operator does not note specifically, the type of dozer used, the amount of earthwork required for reclamation and an mass balance of the earthwork, nor references as to the nature and source of the equipment and materials used in determining the productivity or costs given in the estimate.

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Memo to File
ACT/029/001
December 1, 1986

Determination of the final bond amount cannot be ^{made} determined until those specific requirements and deficiencies found in the reclamation plan have been provided. Upon completion of the reclamation plan, the operator should ammend Attachment 6 - Reclamation Plan, to deliniate specific reclamation treatments used for the site, give appropriate acreages for each treatment, and reference those areas in the cost estimate. Such treatments would specify different seed mixes to be used, type of application to be used, or other specific mechanical or material operations that may be needed in achieving reclamation.

Enclosed are copies of the Division's current forms for different types of bonding. Should you have any further questions regarding bonding requirements or forms, contact Randy Harden at the Division.

jvb
1007R-59

January 7, 1987

TO: Technical File

FROM: Rick P. Summers, Reclamation Hydrologist

RE: Review of Response To Divisions Concerns, Ideal-Basic, Devil's Slide Cement Plant, ACT/029/001, Morgan County, Utah

Summary

Ideal-Basic's reponse (dated October 16, 1986) to the Division's May 9, 1986 review was reviewed relative to hydrology rules during December of 1986. The plan is substantially complete at this time except for the concerns noted below. These comments are based upon the above referenced submittal and a field visit of the site conducted on December 17, 1986.

Body

The following comments are referenced to the applicable rule. Comments include the Division's position and rationale for approval and/or concerns. The concerns should be addressed by the applicant. It is suggested the applicant contact me if further clarification is required on any item.

Rule M-3 Notice of Intention to Commence Mining Operations

- (1)(d) Attachment two and the USGS investigation map MF-290 contain the hydrology related information requested by this rule.
- (1)(e) Attachment four should be updated to depict the berms discussed during the site visit during December of 1986. Specifically, these berms include:
 - 1. The berm along the lower haul road leading to Quarry Hollow.

2. The proposed berm located on the flat near the Weber river from the extent of the disturbed area to the east of ponds #7 and 8 to the mine field point.

As discussed, these berms should have several loose rock drains located along the course of the berm.

The mining operation will result in placement of spoil material in two canyons (Quarry Hollow and Bone Yard canyon). The applicant proposes to utilize a french drain consisting of gravity placed rock fragments to pass any expected flows in these drainages. Although state-of-the-art technology does not exist for design of these drains, a qualitative analysis can be performed. Peak flow values for the expected discharge from the 10, 25, 50, and 100 yr. - 6 hr. precipitation events have been computed (see attached calculations). Using input assumptions submitted by the applicant, a maximum flow of 36 cfs can be expected at the site (Quarry Hollow). The drain expected will be 25 to 30 ft. in depth with an estimated 30 to 40 ft. bottom width (application and site observation). With an assumed 30 % void space expected from loose, gravity placed rock, it is expected that this drain will be significantly adequate to pass the expected 100 yr - 6 hr peak flow event.

- (1)(f) The applicant should indicate the depth of water encountered in wells #1 and 2
- (1)(h) The applicant should discuss the disposal of any water to occur at the site in accordance with this rule. If none, the application should so state.

Rule M-10 Reclamation Standards

- 3 & 13. The application should contain plans for removal/reclamation of the ponds onsite. If ponds are to be left onsite, the applicant must show structures that ensure the ponds will be self-draining and submit appropriate letters of approval for permanent impoundments.

- 7 & 8. The application should contain plans for reclamation and reconstruction of drainages at all disturbed crossings (i.e. roads). The designs should be based upon a 50 yr. - 6 hr. precipitation event. Since the mining operation is dynamic and will require several road relocations during the operation, the applicant may elect to design a typical crossing based upon the worst case peak flow for the site and commit to installing that design at all impacted drainages. This information is to include, but is not limited to, designs for passing flow from the toe of the valley fills (Quarry Hollow and Bone Yard canyon) to the Weber River.
8. The Division has not issued approval for placement of spoil in the Weber River floodplain. The applicant should ensure that continued placement of spoil from the haul road does not occur.
11. Sediment Control. The proposed mining operation is a dynamic process and therefore traditional sediment control measures may not be applicable to this site. The applicant has proposed to construct catch basins as mining progresses to minimize transport of sediment off site. Additionally, a existing berm along the lower haul road and the proposed berm discussed previously will effectively contain the majority runoff from the disturbed area. Loose rock drains located along the berm will allow slow draining of the runoff and minimize sediment contribution from the site. To the east of the site, plant facilities and existing pastureland will act as a sediment filter for the expected minimal sediment produced from disturbances on the east side of the property.

jvb
cc: Sue Linner
Dave Cline
Randy Harden

Peak flow calculations - Ideal - Basic

assumptions:

1) Precipitation 10 yr - 6 hr = 1.4"
50 yr - 6 hr = 2.0" from Miller, et al.
100 yr - 6 hr = 2.2"

- 2) Type B storm distribution
- 3) 6 hr - storm duration
- 4) Curve number

Quarry Hollow = 68
Bone yard = 59

from Attachment 3.

Watershed	Hydraulic length (miles)	Elevation change (feet)	Time of concentration (hours)
Quarry Hollow	1.924	1350.0	0.345
Bone yard	1.242	790.0	0.255

from $T_c = \left[\frac{11.9(L)^3}{H} \right]^{.385}$ where L = hydraulic length (miles)
 H = elevation change (feet)

Results:

watershed	DISCHARGE		
	Q 10yr-6hr. (cfs)	Q 50yr-6hr. (cfs)	Q 100yr-6hr.
Quarry Hollow	6.5	23.0	35.9
Bone yard	< 1.0	5.9	8.4